

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 15-18 are pending in the present application. No claims are amended by the present amendment, thus, no new matter is added.

In the outstanding Office Action, Claims 15-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kerfoot et al. (U.S. Patent 6,704,511, hereinafter Kerfoot) in view of Ryu et al. (U.S. Patent No. 6,330,384, hereinafter Ryu), Coa (U.S. Patent No. 6,731,877) and Hamada (U.S. Pat. No. 5,703,711).

Addressing now the rejection of Claim 15-18 under 35 U.S.C. §103(a) as unpatentable over Kerfoot, Ryu, Coa and Hamada, that rejection is respectfully traversed.

Claim 15 recites, in part,

a dummy optical signal source device configured to generate the non-modulated spectrum slice optical signal, including:

...at least a first and second output optical amplifier, each having an input connected to an output of a respective one of the dummy signal optical multiplexers, and having respective outputs,

an amplification controller configured to modify a gain of at least one non-modulated spectrum slice optical signal component in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components, and

a dummy signal optical multiplexer connecting the respective outputs of the output optical amplifiers to the optical multiplexer.

Claim 17 is directed to corresponding methods for wavelength division multiplexing and optical transmission.

Kerfoot describes a wavelength division multiplex optical signal including a WDM combiner to provide a source signal, at least one transmitter coupled to an input of the WDM combiner, a broadband noise source, and a filter coupled between the broadband noise source and another input of the WDM combiner. In one embodiment, the filter is an optical notch filter. In another embodiment, the filter includes a WDM demultiplexer coupled through plural filters to provide a plurality of noise signals, and a WDM multiplexer coupled through at least one of the plural filters to respective noise signals.

Ryu describes an optical system having a light source, couplers and amplifiers. Fig. 3 of Ryu shows a signal input terminal terminated without reflection.

Cao describes connecting an optical amplifier 24a to a multiplexer 28 via a dispersion compensating element 26a.

However, as is acknowledged on page 5 of the outstanding Office Action, the combination of Kerfoot, Ryu and Cao does not describe or suggest an amplification controller configured to modify a gain of at least one non-modulated spectrum slice optical signal component in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components, as is recited in Claim 15.

Nevertheless the outstanding Action cites Hamada as curing the above noted deficiencies of Kerfoot, Ryu and Cao. Specifically, the outstanding Action states that Hamada illustrates that “using a controller to control an optical amplifier to set a gain to a predetermined profile is well known in the art” and as a result “it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a controller of Hamada into the modified system of Kerfoot, Ryu, and Cao.”

However, Applicants note that such a combination, even if proper, does not describe or render obvious an amplification controller configured to modify a gain of at least one non-

modulated spectrum slice optical signal component in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components, as is recited in Claim 15.

For instance, nothing in Hamada describes that, *when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components*, a gain of at least one non-modulated spectrum slice optical signal component is modified in order to maintain a predetermined overall gain profile of the non-modulated spectrum slice optical signal components.

Hamada describes in the abstract, as well as in col. 2, that the input signal and the output signal are used to detect a resultant gain of the amplifier. Further, based on this detecting, the gain is modified. Thus, if no input signal is detected in Hamada, then no gain modification is made. *Therefore, Hamada cannot be asserted as rendering obvious the claimed invention.*

In addition, Applicants note that the combination of the output optical amplifiers and the amplification controller in the claimed invention provide an advantageous feature that is distinct from merely restoring signal strength of an individualized optical signal.

Specifically, the claimed invention describes ensuring that the overall gain profile of the non-modulated spectrum slice optical signal components is maintained even when no signal is available for amplification for one of the non-modulated spectrum slice optical signal components. Such a configuration enables amplifiers with increased capacity to be used without signal degradation, at least because the overall gain profile of the non-modulated spectrum slice optical signal components is maintained.¹ This feature is simply not described or suggested in any of the cited Kerfoot, Ryu, Cao or Hamada references.

¹ see page 7, paragraph 1 of the present disclosure.

Accordingly, Applicants respectfully submit that Claims 15 and 17, and claims depending therefrom, respectively, patentably distinguish over Kerfoot, Ryu Cao and Hamada considered individually or in combination.

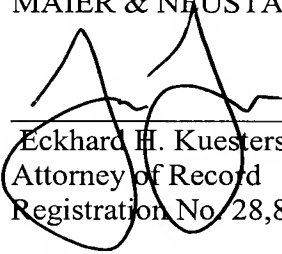
Consequently, in view of the present amendment and in light of the previous discussion, Applicants respectfully submit that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

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